Immunologic Profile of Patients Suffering from Herpes Simplex Virus (HSV) -Associated Oral Lesions Treated with Natural Human Interferon Alpha (Egiferon)

György KÖVES1, Katain PÁLÓCZI2, Klára ÖNODY1, Béla FEKETE4

1Department of Maxillofacial Surgery and 4Teaching Hospital, Semmelweis University of Medicine, 2National Institute of Hematology and Immunology, 3EGIS Pharmaceutical Company, Budapest, Hungary.

10 consecutive patients with HSV-associated chronic oral lesions were treated with Egiferon for ten days. There were a statistically significant increase in the Large Granule Lymphocyte (LGL) counts and the number of spontaneous E rosette forming cells by the end of the treatment period. Interferon alpha brought about a preferential expression of CD8, CD11b, CD14, CD25 and CD45RO cell surface molecules without any effect on the expression of CD2, CD3, CD4, CD20 and HLA-DR. (Pathology Oncology Research Vol 3, No 1, 44-46, 1997)

Key words: interferon alpha, herpes virus, lymphocyte subpopulations

Introduction

Human interferon alpha extracted from buffy coat was the first interferon available on a large scale for clinical use.1 Since 1960 antiviral, antiproliferative and immunoregulatory properties of interferons have been abundantly studied2-9,11-21 and exploited for treating a large spectrum of human diseases, chiefly haematological malignancies.6,8,16,17,21 Recently, however, successes have also been achieved in some chronic viral diseases with interferon treatment.5,13,18,20 These favorable results encouraged us to give interferon to patients suffering from recalcitrant oral HSV-associated disorders.13 We present here the findings on phenotypic changes of circulating mononuclear cells of our patients treated with Egiferon.

Patients and Methods

Three men and seven women (mean age 36.2 years) with serologically confirmed10 HSV-associated recurrent oral disorders were tested. The patients gave informed consent for participation. The study was approved by the Ethical Committee of the Semmelweis University of Medicine. Natural human interferon alpha (Egiferon) was manufactured by EGIS Pharmaceutical Company (Hungary). The patients were given 1 million I.U. Egiferon daily for ten days. The number of peripheral blood lymphocytes (PBL) and LGL were counted under the light microscope. Mononuclear cells were separated on Ficoll-Uromiro gradient. The “total” and “active” E rosette forming PBL were determined by the appropriate assays.12,24

Figure 1. An increase in the LGL count (p<0.01) took place following interferon treatment, whereas the number of PML has not changed.
CD2, CD3, CD4, CD8, CD11b, CD14, CD20, CD25, CD45RO, and HLA-DR cell surface molecules (Ortho and DAKO) were defined by using Ortho Cytorone Absolute Flow Cytometry, and OPD4-7 monoclonal antibodies.

All these assays were performed before and 10 days after the completion of Egiferon treatment.

The double Student’s “t” test was used for statistical evaluation of the data.

**Discussion**

Ten otherwise healthy patients with recurrent HSV-associated oral mucous lesions were treated with natural human interferon alpha (Egiferon) for ten days. The beneficial clinical effect of this treatment was accompanied by particular changes in the expression of various mononuclear cell markers. Before Egiferon treatment the marker pattern of the whole Ficoll-Uromiro-isolated PBL population showed no abnormalities based on the detection of pan-T CD2 and CD3 and the subset-specific CD4 and CD8. As a result of 10 day interferon administration, however, there was a considerable increase in the number of LGL cells, surface expression of cytotoxic T cells and a subset of NK cells (CD8), of activated LFA-1 beta chain carrying cells (CD11b), of monocyto-macrophages (CD14), of IL-2 receptor positive activated lymphocytes

**Results**

The absolute lymphocyte counts showed individual variations, being increased in seven cases and unchanged in three. The overall increase, however, was not statistically significant. On the other hand Egiferon induced statistically significant elevation (p<0.01) in the number of LGL cells (Fig.1). Both the “active” and “total” E rosette forming cells (RFC) showed statistically significant increase (p<0.01) at the end of interferon treatment (Fig.2).

There was no remarkable change in the expression of CD2, CD3, CD4, CD20, and HLA-DR, whereas statistically significant increase was found in the expression of CD8 (p<0.005), CD11b (p<0.001) (Fig.3), CD14 (p<0.01), CD25 (p<0.001) (Fig.4) and CD45RO (p<0.01) (Fig.5).

**Figure 2.** Interferon increased the “active” and the “total” RFC counts (p<0.01)

**Figure 3.** Preferential expressions in CD8 (p<0.005) and CD11b (p<0.001) took place after interferon treatment

**Figure 4.** CD14 (p<0.005) and CD25 expressions increased after interferon treatment

**Figure 5.** An enhancement was found in the CD 45RO expression as a result of interferon treatment (p<0.02)